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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY,

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BUREAU OF ENTOMOLOGY

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CONTROL OF THE MEXICAN BEAN BEETLE
IN THE SOUTHEASTERN UNITED STATES

The Mexican bean beetle (Epilachna corrupta Muls.) is the most serious insect enemy of garden beans in portions of the United States which it inhabits. Long present in the Southwest, it has within the past few years made its appearance in the southeastern United States and now covers portions of six States in that section, including Alabama, Georgia, Tennessee, Kentucky, North Carolina, and South Carolina. It is spreading northward rapidly and may, in the course of a few years, materially extend its range northward.

The adult insect or beetle is copper colored, bears eight black spots on each wing-cover, and measures about one-fourth of an inch in length. Newly emerged specimens are lemon colored. The female lays orange-yellow eggs in clusters of from 40 to 60 on the lower surface of the leaves, and these hatch in 5 to 7 days during summer into small spiny orange-yellow larvae, which molt three times, gradually becoming larger until they are about one-third of an inch in length. The larva transforms to the pupa or inactive stage on the under surface of the leaf, or on weeds or objects nearby, and emerges as an adult or beetle in 5 or 6 days, making a total from egg to adult of 25 to 28 days during summer in Alabama. A maximum of four generations occurred in 1921.

The adults and larvae feed on the under surfaces of bean leaves, leaving a characteristic net work of tissue, which soon dries up. Beans are destroyed in 2 or 3 weeks when beetles are abundant.

The control of the Mexican bean beetle requires careful effort. It has been developed that a high grade of tri-calcium arsenate, diluted with 9 parts of hydrated (or plasterers') lime is effective when applied as a dust to the under surfaces of the leaves. In gardens small dusters are useful. On large patches, a knapsack type of bellows duster with spout attached to a flexible hose is the best machine. The fan type of cotton or tobacco duster gives fair results if the discharge tube is turned sidewise so as to direct the dust into the foliage.

The application should be made evenly and not too heavily, care being exercised to reach the under surfaces. From one to four applications are necessary for bush varieties, depending upon the degree of infestations. When beetles are very abundant, the planting of pole beans is not recommended, because of the large number of treatments necessary and the difficulty of applying them.

A mixture of high grade calcium arsenate 1 part, dusting sulphur 1 part, and hydrated lime 4 parts has been recommended by the Alabama Experiment Station and used satisfactorily by the Bureau of Entomology. During hot weather the amount of hydrated lime may be doubled to insure against foliage injury.

Where obtainable, magnesium arsenate, used as a spray at the rate of 1 pound to 50 gallons of water, or 1 ounce to 3 gallons, is quite effective and does not injure bean foliage. When used as a dust it may be diluted with from one to five parts of hydrated lime.

CONTROL OF THE MEXICAN BEAN BEETLE
IN THE SOUTHEASTERN UNITED STATES

The Mexican bean beetle (*Bolalagus corticatus* Muls.) is the most serious insect enemy of garden beans in portions of the United States which it inhabits. Long known at in the Southwest, it has within the past few years made its appearance in the southeastern United States and now covers portions of six States in that section, including Alabama, Georgia, Tennessee, Kentucky, North Carolina, and South Carolina. It is spreading northward rapidly and may, in the course of a few years, necessarily extend its range northward.

The adult insect or beetle is copper colored, bears eight black spots on each elytron, and measures about one-fourth of an inch in length. Newly emerged beetles are a yellowish color. The female lays orange-yellow eggs in clusters of from 40 to 60 on the lower surface of the leaves, and these hatch in 5 to 7 days during summer. The young are small, spindle-shaped, yellowish, which molt three times, gradually becoming larger until they are about one-third of an inch in length. The larvae transform to the pupal or inactive stage on the under surface of the leaf, or on weeds or objects nearby, and emerge as an adult or beetle in 5 or 6 days, making a total from egg to adult of 22 to 23 days during summer in Alabama. A maximum of four generations occurred in 1921.

The adults and larvae feed on the under surface of bean leaves, leaving a characteristic web work of silken, which soon dries up. Beans are destroyed in 2 or 3 weeks when beetles are abundant.

The control of the Mexican bean beetle requires careful effort. It has been developed that a high grade of trichloroethylene, diluted with 5 parts of kerosene (or gasoline) is effective when applied as a dust to the under surface of the leaves. In gardens small beetles are useful. On large estates, a backpack type of bellows blower with spray attached to a flexible hose is the best machine. The mixture of trichloroethylene dust gives fair results if the discharge tube is turned sideways so as to direct the dust into the foliage.

The application should be made evenly and not too heavily, care being exercised to reach the under surface. From one to four applications are necessary for beans, depending upon the degree of infestation. When beetles are very abundant, the planting of pole beans is not recommended, because of the large number of treatments necessary and the difficulty of applying them.

A mixture of high grade calcium arsenate 1 part, dusting sulfur 1 part, and hydrated lime 4 parts has been recommended by the Alabama Experiment Station and used satisfactorily by the Bureau of Entomology. During hot weather the amount of hydrated lime may be doubled to insure against foliar injury.

Where obtainable, pyrethrum extract, used as a spray at the rate of 1 pound to 50 gallons of water, or 1 ounce to 1 gallon, is quite effective and does not injure bean foliage. When used as a dust it may be diluted with from one to five parts of hydrated lime.

Bean foliage is extremely susceptible to insecticide injury in the form of burning or scalding, hence the careless use of arsenicals may result in the total destruction of a bean crop. Paris green should never be used on bean foliage under any circumstances and arsenate of lead is unsafe for use in the Southeastern United States. Zinc arsenite, while not so injurious as lead arsenate, is inferior to the arsenicals mentioned above.

If snap beans treated with arsenicals are washed thoroughly before eating, no danger of poisoning will result.

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Approved:

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